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Industry Cluster Analysis for Washington State

Workforce Development Areas

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Purpose

- Identify and characterize strong clusters in each workforce region in Washington
- Show cluster characteristics graphically
- Show locations of members of each cluster
- Develop a methodology for assessing the strategic value of clusters



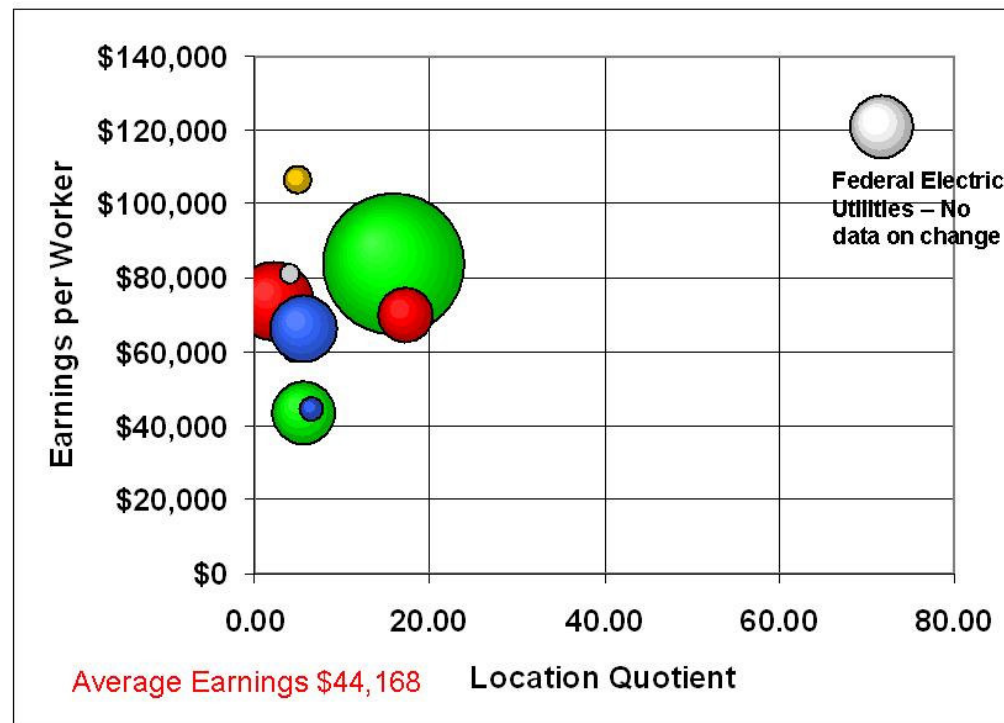
What is a cluster

LQ	Location Quotient (industry output in region divided by total regional output)
<hr/>	
	(industry output in nation divided by total national output)

- Firms in one or more industries that have competitive advantage in a region
 - Cluster competitive advantage may be based on resources, shared labor pool, access to research or other institutions, presence of significant customers or suppliers in the region, and innovation within the cluster
- Empirical definition in this study:
 - High LQ, strong inter-industry ties (sales or purchases from other industries as depicted in input-output model), or moderate LQ + significant size
 - Data sources: IMPLAN input-output model for each WDA, ESD data on cluster characteristics

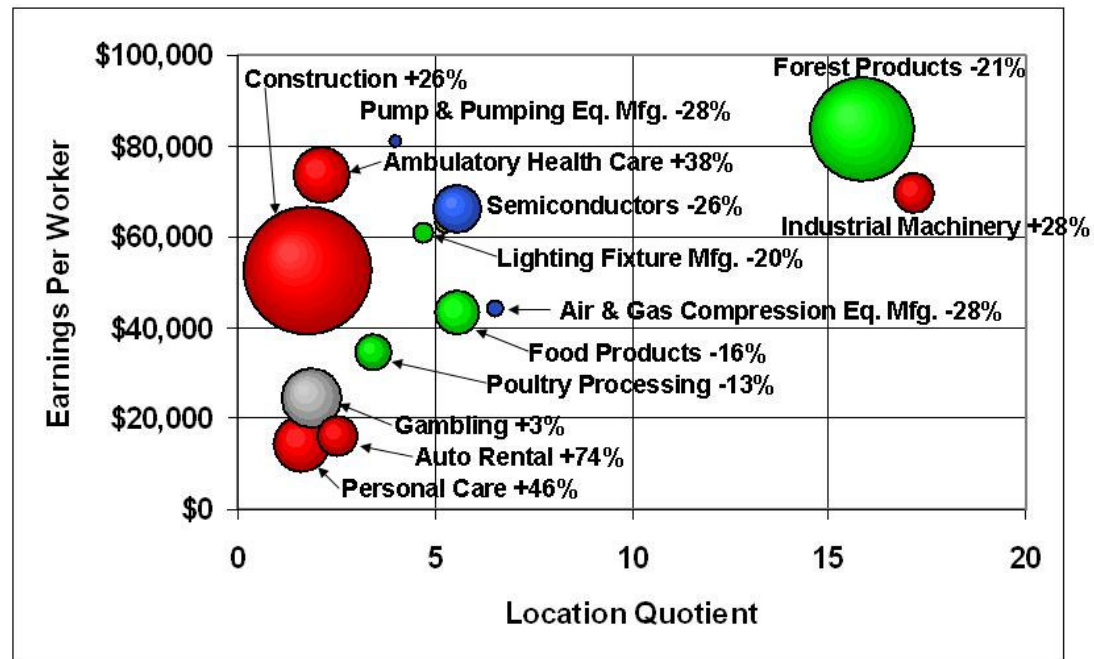
WDA7: Clark, Cowlitz, Skamania and Wahkiakum Counties

WDA 7 – Clark, Cowlitz, Skamania & Wahkiakum



WDA7: Clark, Cowlitz, Skamania and Wahkiakum Counties

WDA 7 Except Federal Electrical Utilities



Relay and Industrial Control Mfg. Not Displayed Due to Disclosure Rules.
Other Commercial and Service Industry Machinery is covered by semiconductors.

WDA7: Clark, Cowlitz, Skamania and Wahkiakum Counties

Cluster or Industry	LQ	Employment	Output (\$ millions)	Earnings/ Worker	Chg Est 01-07	Chg Empl 01-07	Chg Wage 01-07	Projected Employment Increase 2006-16	R&D Occ'n. as % Empl.	Exports as % Output
Federal Electrical Utilities	71.65	1,574	982	120,783	n/a	n/a	n/a	n/a	n/a	71.2%
Industrial Machinery	17.17	1,077	296	69,808	12.8%	27.6%	57.7%	1.5%	13.6%	22.7%
Forest Products	15.86	7,293	3,611	83,777	-13.9%	-20.7%	19.1%	-15.9%	1.7%	87.8%
Air & Gas Compression										
Equipment Mfg.	6.53	219	78	44,502	-33.3%	-27.8%	-10.1%	21.8%	8.6%	94.6%
Food Products	5.59	1,493	518	43,352	-25.4%	-16.4%	-1.3%	5.1%	1.8%	75.5%
Semiconductors	5.55	1,727	1,339	66,315	-6.3%	-26.1%	-14.2%	2.1%	19.4%	79.7%
Other Commercial and Service										
Industry Machinery	5.29	363	51	63,129	-40.0%	-6.2%	15.7%	n/a	n/a	64.2%
Lighting Fixture Mfg.	4.73	284	71	60,947	-34.6%	-20.5%	-3.5%	n/a	n/a	100.0%
Pump & Pumping Eq Mfg.	4.02	141	83	81,021	-33.3%	-27.8%	-10.1%	21.8%	8.6%	96.7%
Poultry Processing	3.46	1,039	236	34,688	-42.2%	-12.6%	14.1%	n/a	n/a	58.7%
Auto Rental	2.52	1,111	135	16,418	59.3%	74.1%	89.7%	17.1%	7.0%	40.2%
Other Ambulatory Health Care	2.13	2,399	437	73,528	38.2%	38.2%	80.2%	16.8%	0.3%	46.8%
Gambling	1.85	2,430	180	24,736	-1.0%	-2.6%	36.2%	31.2%	0.0%	46.4%
Construction	1.75	11,176	1,339	52,452	-5.6%	26.9%	73.0%	6.5%	0.8%	19.0%
Personal Care	1.61	2,346	102	14,552	23.5%	46.1%	69.5%	33.6%	0.0%	33.5%

Note:

Percentage employment increase and percent R&D occupations for all food product manufacturing statewide used for food products in the region.

Note: new variable to be added for “middle wage jobs.”
(the percent of jobs in the cluster whose median occupational wages fall within the 25th to 75th percentile of all occupations in the region)



WDA7: Clark, Cowlitz, Skamania and Wahkiakum Counties

Mean	Pct25	Median	Pct75
Wages	Wages	Wages	Wages
\$41,422	\$23,649	\$33,754	\$50,894

25th
percentile
as %
median
70%

75th
percentile
as %
median
66%

Number of occupations in 25th-75th percentile range

261

Total number of occupations

490

Percent of occupations in 25th-75th percentile range

53%

Middle wage jobs in this region are those in occupations in which the median wage falls between \$23,649 and \$50,894. There are 261 such occupations, 53 percent of all occupations in the region.

WDA7: Clark, Cowlitz, Skamania and Wahkiakum Counties

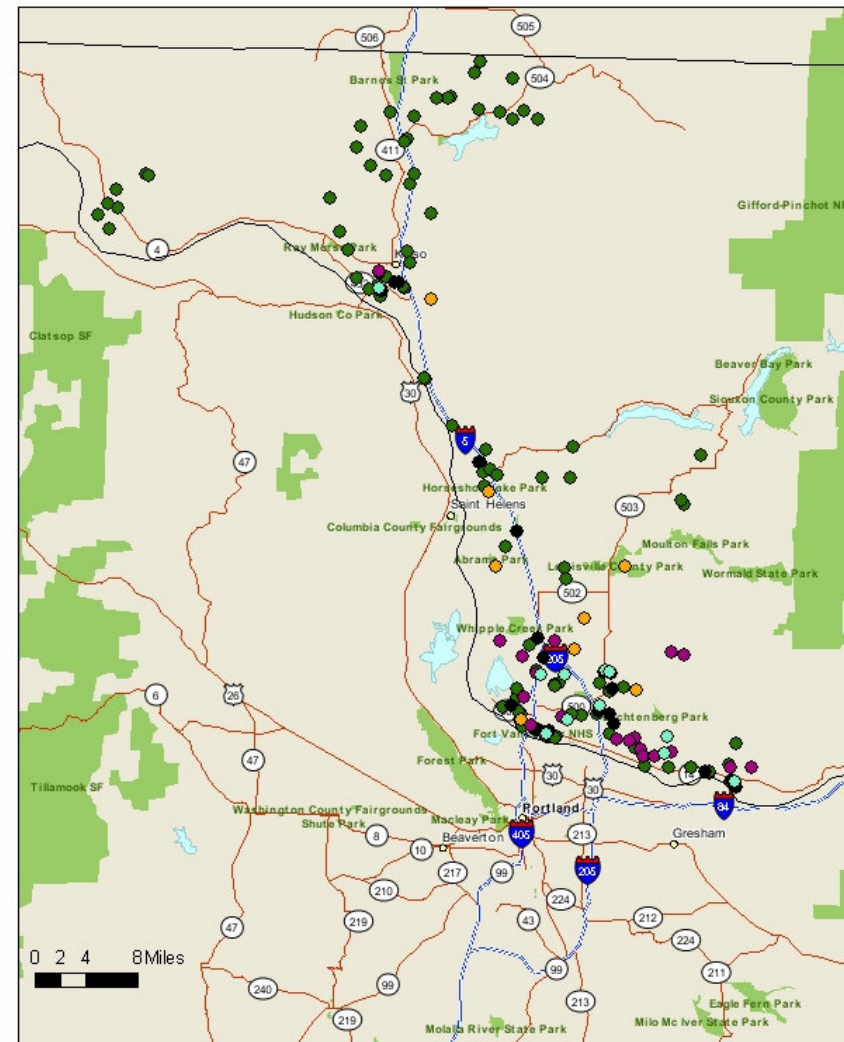
Rankings

Cluster or Industry	LQ	Employment	Output (\$ millions)	Earnings/ Worker	Chg Est 01-07	Chg Empl 01-07	Chg Wage 01-07	Projected Employment Increase 2006-16	R&D Occ'n. as % Empl.	Exports as % Output	Sum of Ranks*	Index (100-Summed Scores)	Sum of Ranks/ Complete Scores	Index (100-Summed Scores)
Federal Electrical Utilities	1	7	4	1	7.5	7.5	7.5	6	6	7	55	46	20	80
Industrial Machinery	2	10	7	5	4	4	5	10	2	14	63	37	38	62
Forest Products	3	2	1	2	8	11	7	11	7	4	56	44	12	88
Air & Gas Compression														
Equipment Mfg.	4	14	13	10	10	13	12	3	3	3	85	15	44	56
Food Products	5	8	5	11	9	9	10	8	6	6	77	23	35	65
Semiconductors	6	6	3	6	7	12	14	9	1	5	69	31	26	74
Other Commercial and Service														
Industry Machinery	7	12	15	7	13	7	8	6	6	8	89	11	49	51
Lighting Fixture Mfg.	8	13	14	8	12	10	11	6	6	1	89	11	44	56
Pump & Pumping Eq Mfg.	9	15	12	3	11	14	13	4	4	2	87	13	41	59
Poultry Processing	10	11	8	12	14	8	9	6	6	9	93	7	50	50
Auto Rental	11	9	10	14	1	1	1	5	5	12	69	31	56	44
Other Ambulatory Health Care	12	4	6	4	2	3	2	6	9	10	58	42	36	64
Gambling	13	3	9	13	5	6	6	2	10	11	78	22	49	51
Construction	14	1	2	9	6	5	3	7	8	15	70	30	41	59
Personal Care	15	5	11	15	3	2	4	1	11	13	80	20	59	41

Map of Clusters in WDA7

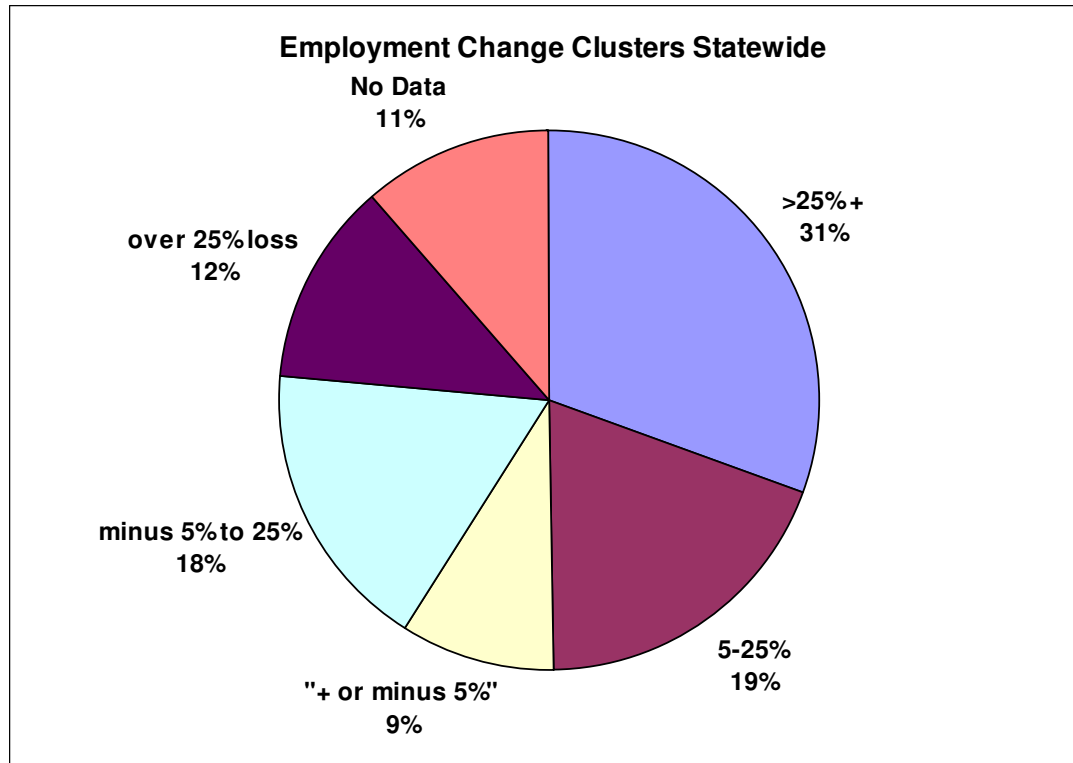
Washington State WDA Region 7 Cluster Firms

- 7 Semiconductors
- 7 Service Specialties
- 7 Manufacturing Specialties
- 7 Food Products
- 7 Forest Products



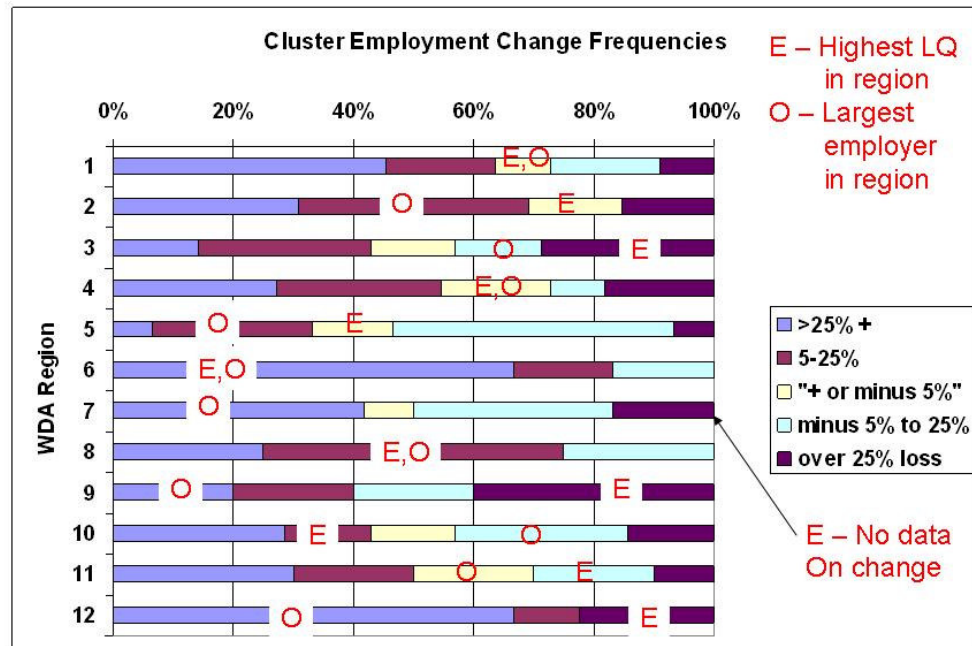


Conclusions from Analyzing All 12 Regions



Employment is growing in at least half of all clusters in the state

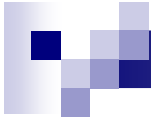
Conclusions from Analyzing All 12 Regions



Regions 1, 2, 4, 6, 8, and 12 show a domination of growth in employment across clusters.

Regions 3, 7, 10 and 11 are split between growth and decline.

Neither a high LQ or being the largest industry is a guarantor of growth (but in 8 regions the largest employer is in one of the two highest growth categories).



Clusters vs. Industries

- In all regions of the state, there are more “isolates” (industries with strong LQs but low levels of linkages to other industries) than “clusters” (high LQ and high linkage)
- Porter talks about “non-traded interdependencies,” i.e., relationships we cannot measure with secondary data



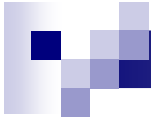
Examples of Non-Traded Interdependencies

- **Non-Store Retailers** in King Co. – many links to information technology companies, reliance on the IT labor pool in King/Snohomish counties
- **Wineries** in regions E WA and Benton/Franklin – R&D and workforce ties to local higher education institutions
- **Architecture/Engineering and Scientific R&D** in Benton/Franklin– part of the complex of companies developing technologies and infrastructure for radioactive waste management on the Hanford reservation
- **Important to supplement secondary data on clusters with other information**



Innovation

- Strategic matrices show R&D potential (proportion of workforce in scientific and engineering occupations)
- Output measure is feasible but not included in report (patenting - need to expend significant effort or \$\$\$ to get patents by industry and region)
- Innovation takes many forms not captured by patents - e.g., entrepreneurial activity introducing new products or services or inventing entirely new industries, process improvements, product quality improvements
- This analysis does not capture all of the innovation potential of the identified clusters, or the new clusters entrepreneurs may be creating



Report Availability

- Will be posted on WTECB website when completed
- Draft has been reviewed - revisions should be completed next week
- Individual cluster maps for each region will be posted on the WTECB website